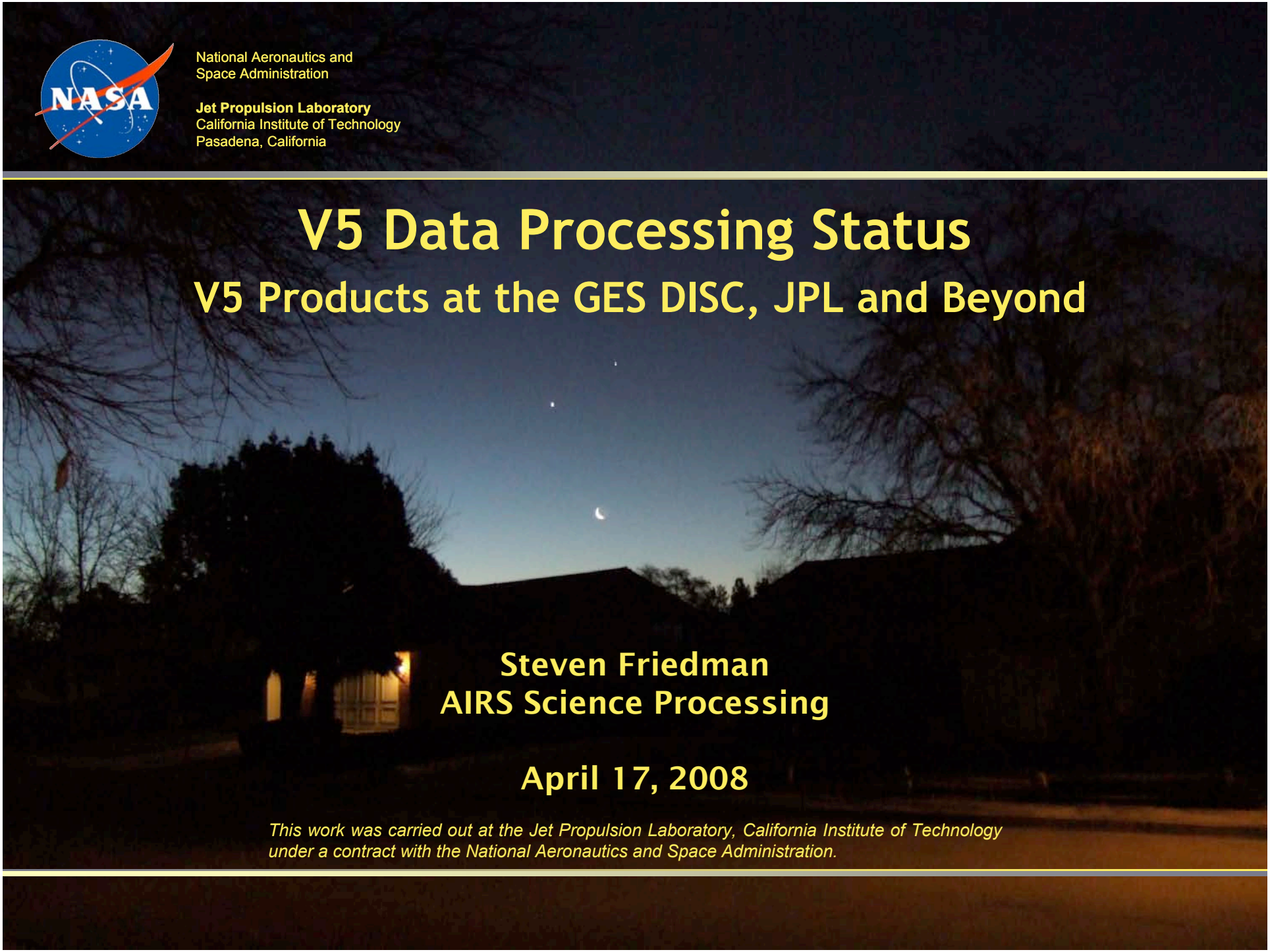

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V5 Data Processing Status

V5 Products at the GES DISC, JPL and Beyond

Steven Friedman
AIRS Science Processing

April 17, 2008

This work was carried out at the Jet Propulsion Laboratory, California Institute of Technology under a contract with the National Aeronautics and Space Administration.

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Topics

- **Version5 Processing Milestones**
- **Version 5 Processing at:**
  - GES DISC
  - JPL
  - NOAA
  - Direct Broadcast

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Version 5 Processing Highlights

- **Version 5 Delivered to GES DISC in stages**
  - Level 1 – delivered during late December 2006
    - Processing started – March 2007
    - Reprocessing completed - June 2007
  - Level 2 and Level 3 – delivered May 2007
    - Processing started – July 2007
    - Reprocessing completed – November 2007 (almost)
  - AMSU-A Channel NeDT anomaly
    - Began IR-Only forward stream - November 2007 (no reprocessing)
    - Delivered *new* Level 2 PGE to GES DISC – February 2008
    - Processing *new* Levels 2 and 3 – March 2008
    - **ALL** Reprocessing completed on March 2008

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V5 Products - Everywhere

- **V5 Products are being produced at:**
  - GES DISC
    - Typical Standard Products
    - Near-real Time Products (since July 2007)
    - Some specialized Products
  - NOAA NESDIS
    - Typical products for data assimilation (BUFR formatted data)
    - Some additional prototype products for customers
  - JPL
    - Some specialized research products
  - Direct Broadcast Stations (near you!)
    - Level 1B and Level 2 as locally needed

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V5 Processing at the GES DISC

- **GES DISC is producing the following V5 standard products**
  - Level 1B AMSU-A
  - Level 1B AIRS
  - Level 1B VIS
  - Level 1B HSB[1]
  - Level 1B Cal. Subset
  - Level 2 AIRS+AMSU[2]
  - Level 3 AIRS+AMSU[2]
  - Level 2 AIRS-only[3]
  - Level 3 AIRS-only[3]

[1]HSB data available only through February 5, 2003

Two versions of Level 2 and Level 3 products occur from August 31, 2002 through February 5, 2003, when HSB failed.

[2]Special Note on AIRS+AMSU Level 2 and 3 Products

AMSU-A Channel 4 radiometric noise, NeDT, rendered Level 2 products using AMSU-A Channel 4 useless after October 1, 2007. The AIRS Project instituted a patch, V5.2, which works around the problem by modeling a Channel 4 from other AMSU-A channels for retrievals.

AIRS Data Products:

Using AMSU-A Channel 4 – through September 30, 2007
Using modeled/AMSU-A Channel 4 – beginning October 1, 2007

[3]AIRS-only products routinely produced since November 1, 2007

***Data are available for entire mission life, beginning on August 31, 2002 unless otherwise noted**

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V5 Processing at the GES DISC

- **V5 Level 2 Support Products:**
  - AIRS+AMSU+HSB[1]
  - AIRS+AMSU[2]
  - AIRS-only[3]
- **Level 3 Details (all combinatories – AIRS+AMSU, AIRS+ASMU+HSB, AIRS-only)[123]**
  - Level 3 Standard Products: Daily, eight-day, monthly
  - Level 3 Quantized Products: five-day, monthly

***New for Version 5 are Calibration Subset and all Level 3 Quantized Products**

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Version 4 Data at the GES DISC

- **Version 5 Reprocessing has been completed !!!!**
- **Are there other data sets we should process?**
  - Would it be useful to produce IR-Only L2 and L3 for entire mission?
- **The clock on Version 4 products currently at the GES DISC archives is ticking.**
  - GES DISC policy is to retain previous collection for a period of at least 6-months after the new collection is complete
  - If you need Version 4 products, get them soon.

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V5 Processing at the GES DISC

- **GES DISC is also producing the following V5 research products**
  - Level 3 Support (experimental) Products
    - Not publicly available
    - *Available to AIRS Science Team members by request*
    - Includes all core products and trace gases at 100 pressure levels
    - Special products including
      - IR Precipitation Rates
      - Course Climate Indicators – tropospheric and stratospheric
      - Daily precipitation (analogous to TOVS)
      - Microwave SST
      - Gridded dust and SO2 indicators
    - Extended QA parameters

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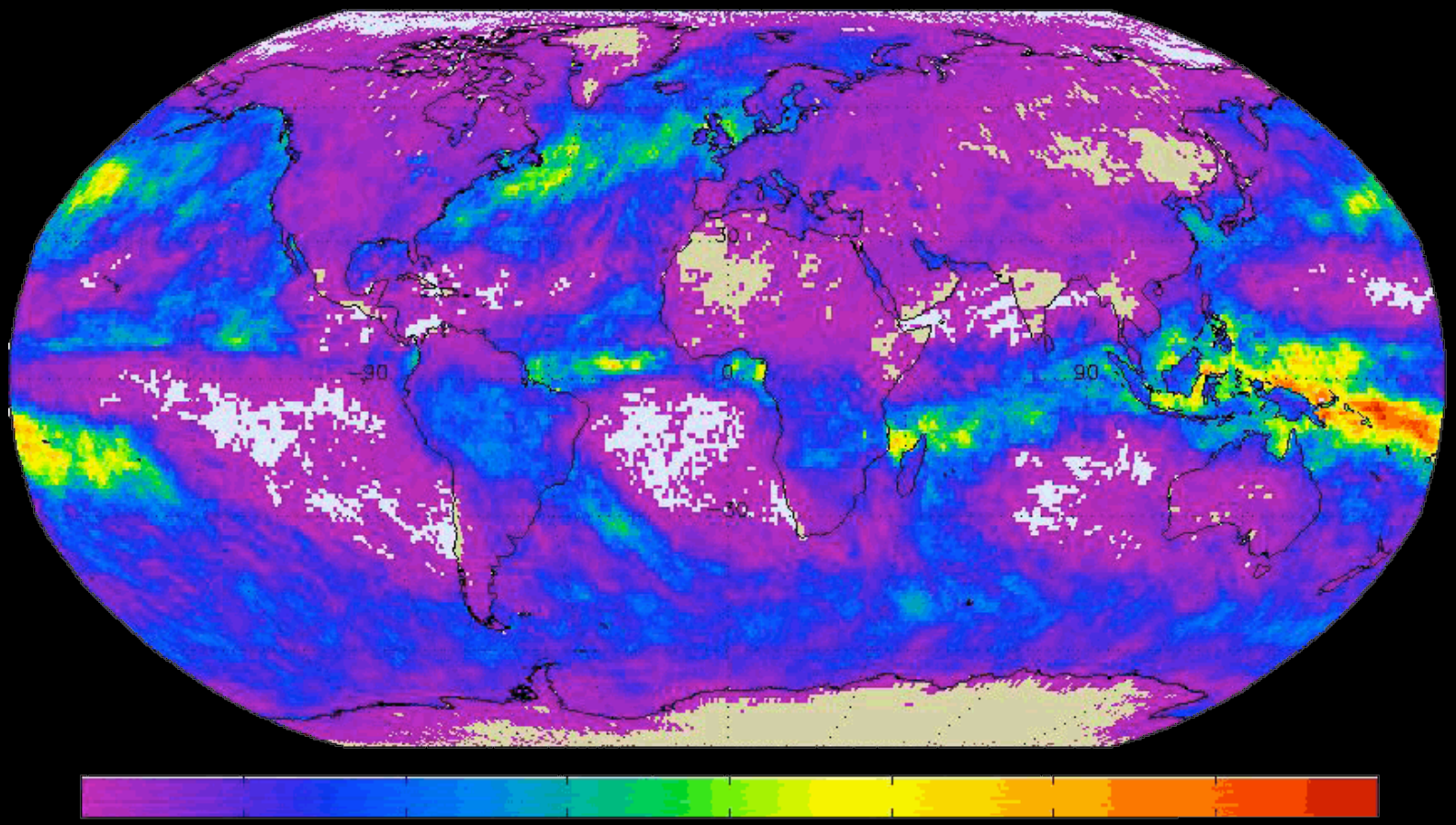
Sample V5 Support Products: IR Precipitation Estimate



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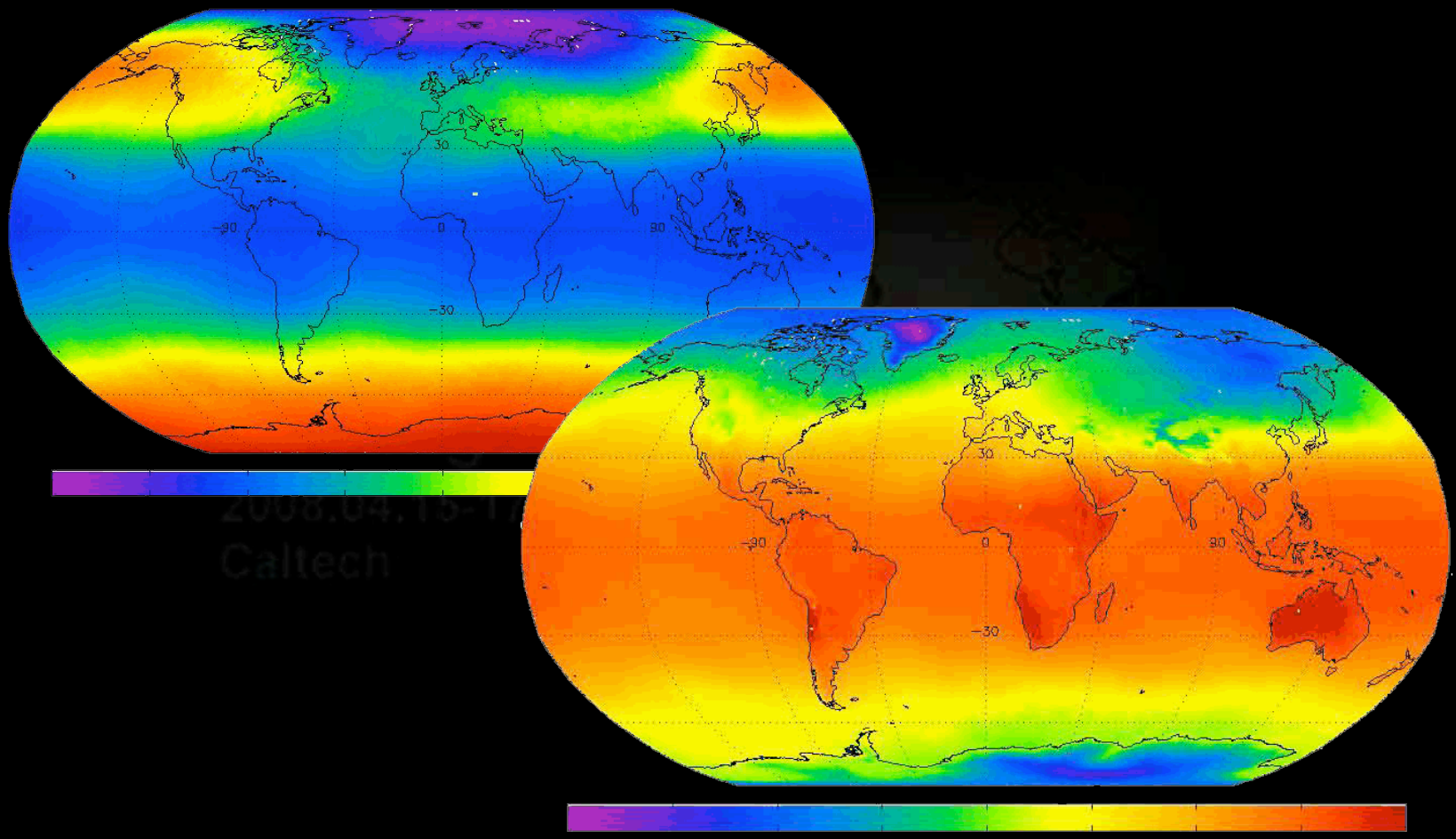
Sample V5 Support Products: Course Climate Indicators



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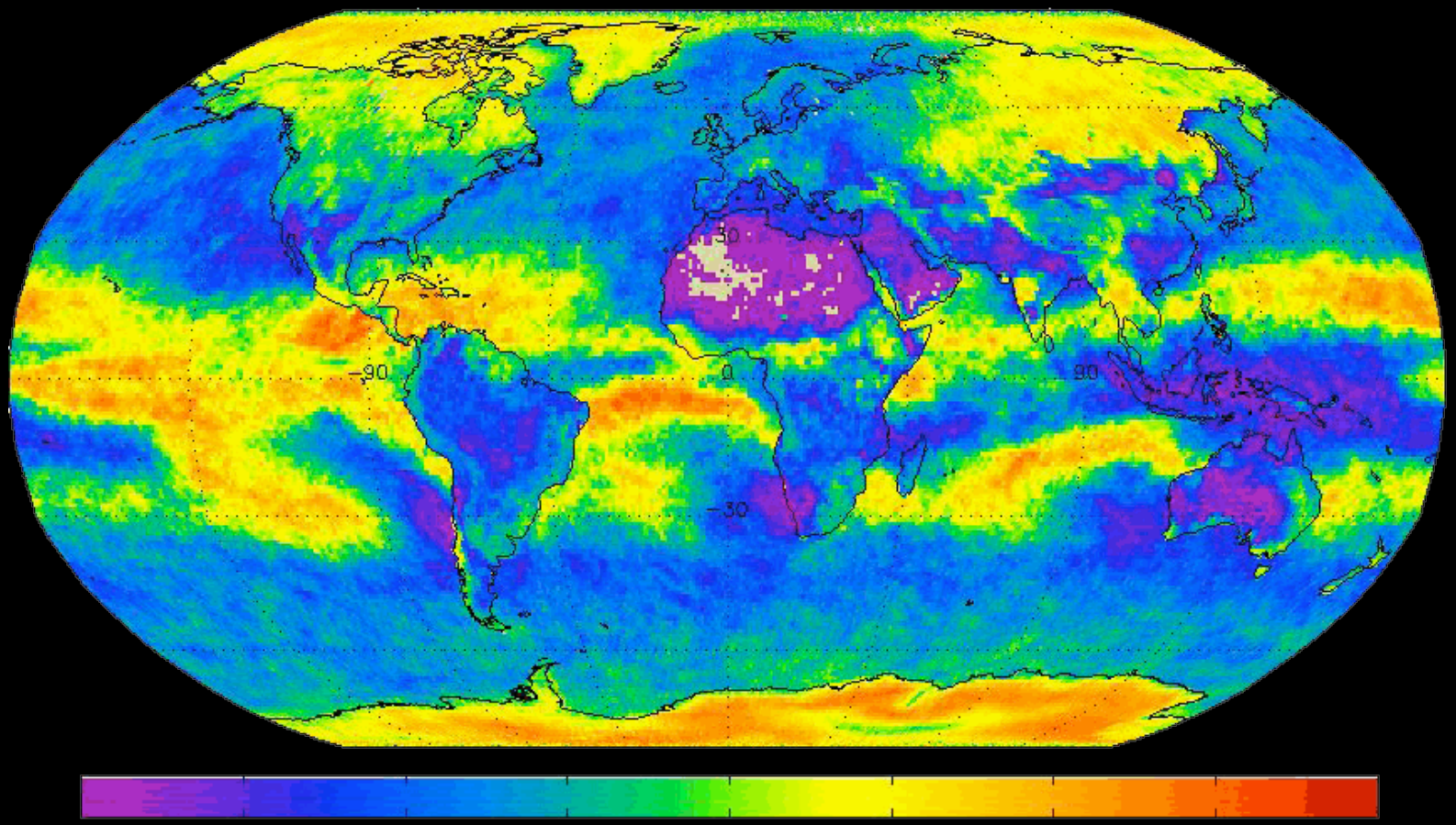
Sample V5 Support Products: Dust Score



AIRS: 2007-10-11 - 10

V5 Processing at NOAA NESDIS

- **NOAA NESDIS upgraded to V5.0 Processing – January 2008**
  - Delivery to all NOAA customers in BUFR format
  - Still running in SGI environment
- **Upgraded V5 to 5.2 – April 2008**
- **JPL currently preparing Linux distribution for NOAA NESDIS**
  - Linux environment migration to take place during late Spring 2008

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V5 Processing at JPL

- **JPL primarily continues to produce test products to solve problems and verify recent upgrades**

- **JPL does produce research products for a local AIRS community**

  - CO2 Beta Products are being produced
    - Based on M. Chahine's research
    - Currently processed January 2005 – August 2006

    - Producing specialized formatted product (non-HDF) primarily for internal use

    - Science Team may request access to these data files

    - We have no plans to migrate CO2 Processing to the GES DISC during the V5 processing timeframe

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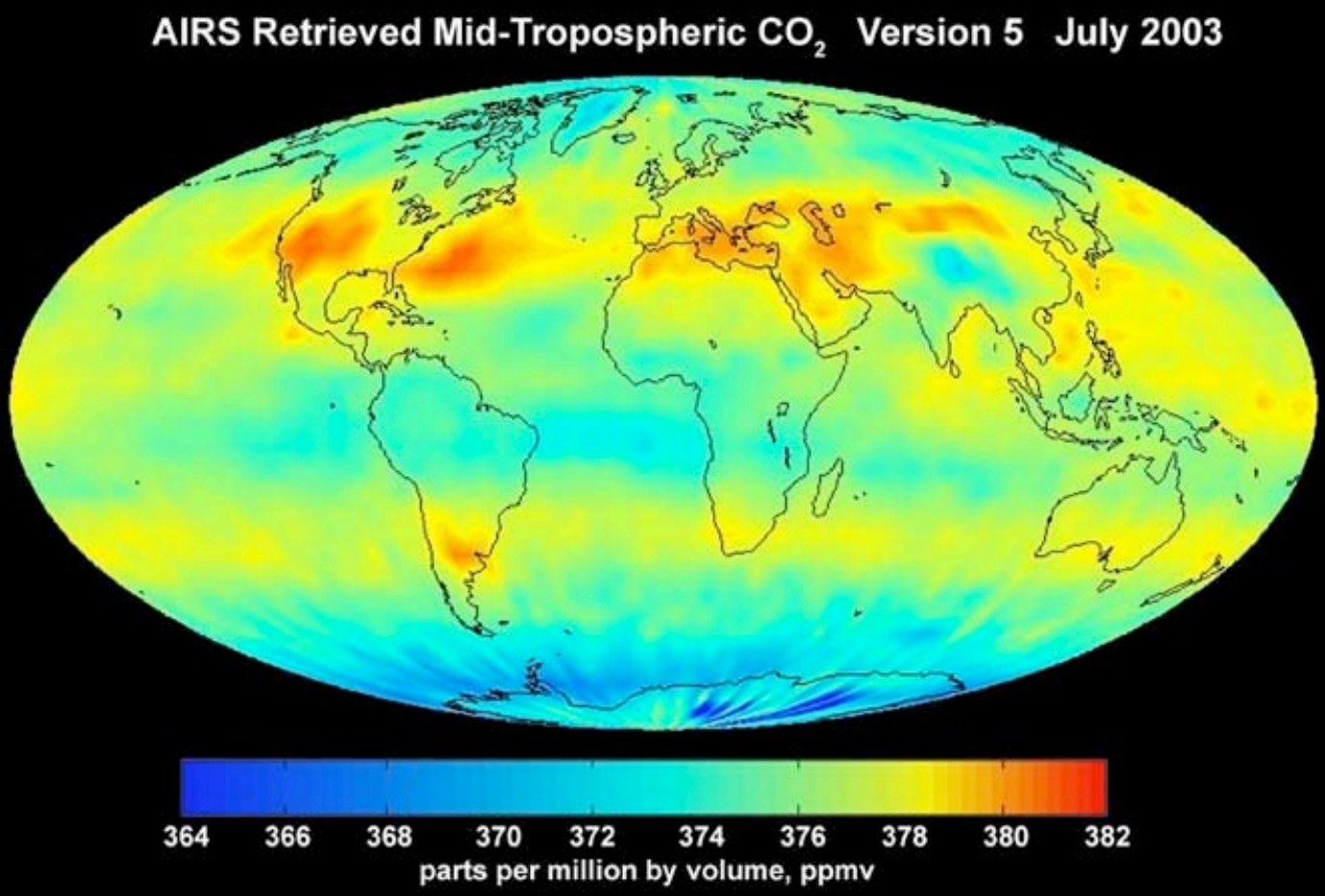
Mid-Tropospheric CO2 Processing at JPL



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V5 Processing by Direct Broadcast

- **The University of Wisconsin makes their International MODIS/AIRS Processing Package (IMAPP) available for download:**
- http://cimss.ssec.wisc.edu/imapp/download/
  - Includes the executables for processing Levels 1 and 2 AIRS and AMSU-A data
  - AIRS SW built by JPL for use by Direct Broadcast customers
    - Same algorithm used at GES DISC except …
    - Uses predicted attitude and ephemeris data
    - Otherwise, Identical code to that being run at the GES DISC
  - Currently version V4.0 is available
  - Integration of 5.2 is underway

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V5 Processing by Direct Broadcast

- **The University of Wisconsin produces AIRS, MODIS and AMSR-E Direct Broadcast products for FTP:**
  - ftp://ftp.ssec.wisc.edu/pub/eosdb/aqua/airs
  - Includes locally produced data from Direct Broadcast sources of Level 0 data from using: Version 5.0.18 IR-Only
    - Supports many local users and…
    - NASA SPoRT
    - ???
  - Links to other producers are also available at their site